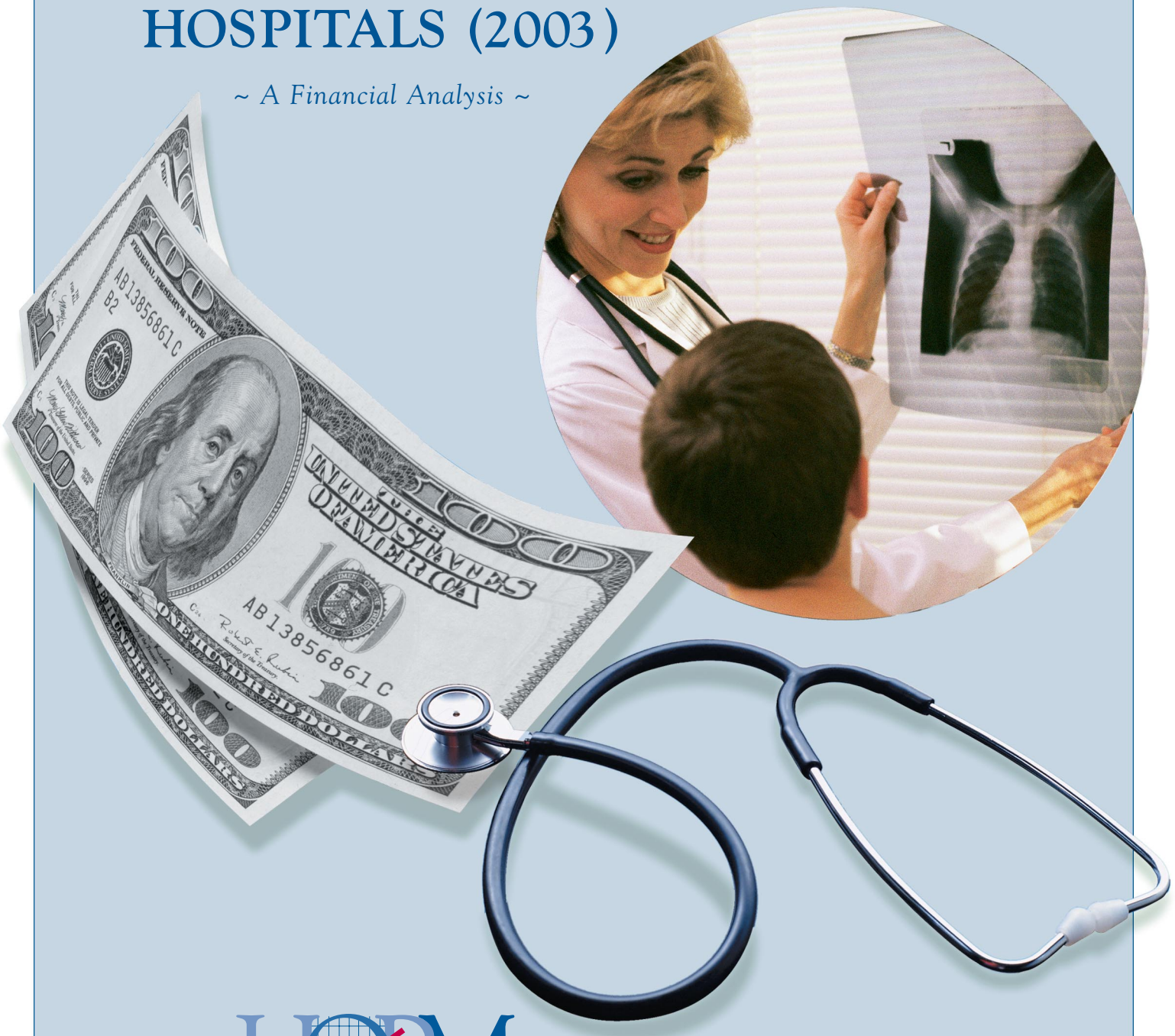
THE HEALTH OF RHODE ISLAND'S HOSPITALS (2003)

~ A Financial Analysis ~



HQPM

Health Quality Performance Measurement

RHODE ISLAND DEPARTMENT OF HEALTH

"The Health of RI's Hospitals (2003)"

Bruce Cryan, MBA, MS

Rhode Island Department of Health
Office of Performance Measurement
(401) 222-5123
FAX (401) 273-4350
brucec@doh.state.ri.us

available on the web @ www.health.ri.gov

June 2004

Table of Contents

I: Executive Summary

Rhode Island's community hospitals are a $2.2 billion dollar industry comprising 8% of the Gross State Product. The hospitals' payroll approaches $1.2 billion, and they invest more than $125 million annually in new capital (construction and equipment). Because of their importance to healthcare delivery, their impact on the economy, and the large public investment they represent, there is interest in monitoring the performance of this industry.

This Report, updated from 2001, uses HEALTH's Hospital Financial Dataset[1] to evaluate the financial performance of RI hospitals and benchmarks it to others across the country. The Report also ranks the individual facilities in the state. Findings show:

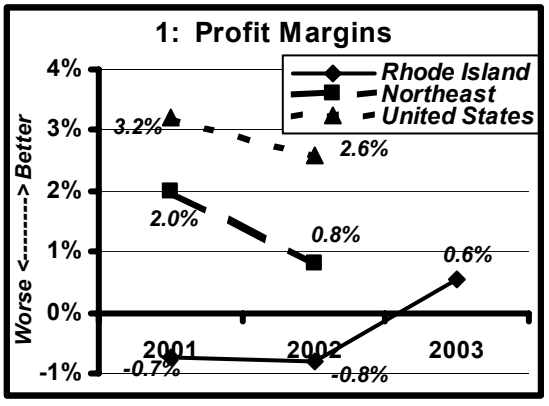
In 2002, compared to their national counterparts, **RI hospitals:**

- **were less profitable** *(-0.8% vs.2.6% profit margins)***,**
- **their net worth shrunk** *(-1% vs.5% equity growth rates)***,**
- **they had weaker liquidity** *(1.6 vs.2.0 current ratios)***, but**
- **slightly better collections** *(57 vs. 59 days in accounts receivable)***.**
- **RI hospitals financed with more debt** *(30% vs.27% debt to capitalization)***, and**
- **had less capacity to increase borrowings** *(2.4 vs. 2.9 debt service coverage)***, but**
- **they used their fixed assets more productively** *($2.69 vs.$2.36 fixed asset turnovers)***.**

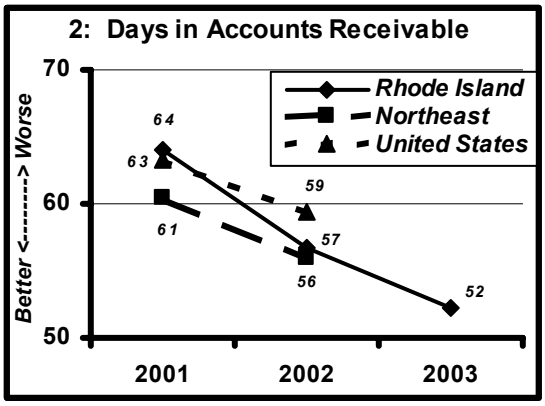
In 2003, RI hospitals':

- **profitability improved** *(-0.8% to 0.6% profit margins)***,**
- **net worth increased** *(-1% to 10% equity growth rates)***, but**
- **liquidity fell slightly** *(1.6 to 1.5 current ratios)***, however,**
- **collections improved** *(57 to 52 days in accounts receivable)***.**
- **RI hospitals decreased their leverage** *(30% to 27% debt to capitalization)***,**
- **improved their debt capacity** *(2.4 to 2.8 debt service coverage)***, and**
- **increased the productivity of their fixed assets** *($2.69 to $2.71 fixed asset turnovers)***.**

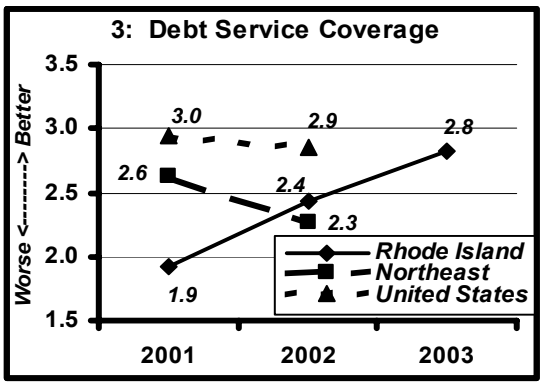
Profitability measures examine the generation of net income and the creation of wealth. Profitability is important to a hospital's long-term survival because it provides the means to replace aging plants and to invest in new technologies. Average RI *Profit Margins* trailed both the regional and national benchmarks to a significant extent each year (Chart 1). However, in 2003, statewide profitability returned, although the margin was a meager 0.6%. In addition to being less profitable, RI hospitals also lost more net worth (i.e., *Equity Growth Rates*) than their national or regional counterparts.



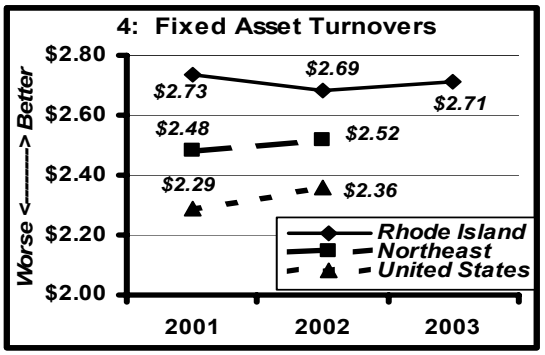
[1] *The Hospital Financial Dataset (2003), Cryan, B., www.HEALTH.ri.gov*



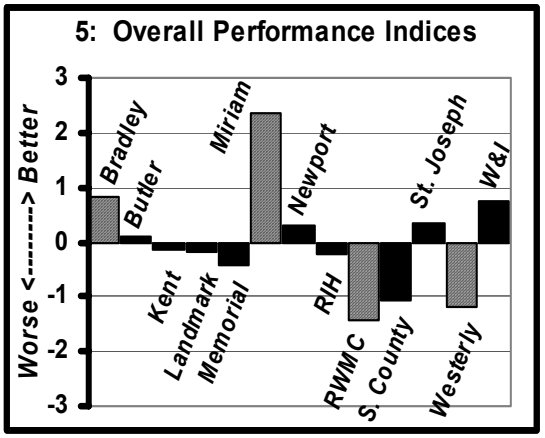
Liquidity measures assess the ability of a hospital to pay its short-term obligations and the realization of cash. Deterioration in liquidity usually indicates cash flow problems when an organization experiences financial difficulty. RI hospitals improved their liquidity by reducing the time bills were outstanding (i.e., the *Days in Accounts Receivable*) to a point consistent with the regional rate (Chart 2). There was further improvement in this measure in 2003 (from 57 to 52 days). RI's current accounts were in better balance (i.e., the *Current Ratio*) than the regional benchmark, but fell below the U.S. comparable.



Leverage measures define the importance of debt in financing the hospital, and the ability to borrow additional monies. The state's hospital system was slightly more leveraged (i.e., *Debt to* Capitalization) than the U.S. rate but less leveraged than the regional rate. In 2003, RI retired some debt and increased hospital equity, thereby improving this measure from 30% to 27%. RI hospitals were not highly leveraged, but they had a compromised capacity to secure additional financing because of historical low profitability, although this situation is improving. The ability to pay back the debt (i.e., the *Debt Service Coverage*) trailed the national experience both years, but improved to beat the regional statistic in 2002 (Chart 3). RI further improved its *Debt Service Coverage* in 2003, from 2.4 to 2.8.



Efficiency statistics examine how productively a hospital uses its assets to generate revenue. Higher values indicate a more efficient use of resources, all else being equal. The *Fixed Asset Turnover* measures the number of dollars generated from each dollar invested in property, plant and equipment. Statewide values were consistently and favorably above both the regional and national amounts (Chart 4).



This Report also compares the individual hospitals in the state, using an aggregate index of eight measures over three years. Higher values are preferred (Chart 5). **Miriam** and **Bradley** showed the strongest overall financial performance, while **Roger Williams** and **Westerly** exhibited the weakest overall performance, respectively.

II. Introduction

The technique of ratio analysis has been used for years by investors, financiers and managers to assess the performance of businesses and hospitals. The *Health of Rhode Island's Hospitals (2003)* uses that tool to present an updated financial analysis of the State's hospital industry. It compares RI hospitals' performance over time (2001-2003), and to local, regional and national norms. In addition, it ranks the individual hospitals in the state based on their overall financial performance. The primary data sources were the audited financial statements for RI's 13 community hospitals[2] and comparable benchmark information came from the *Almanac of Hospital Financial & Operating Indicators*.[3]

The following guidelines should improve the Report's utility:

- This analysis examines financial operations only. It does not include information on clinical outcomes or patient satisfaction, both of which are additional aspects of overall performance. See www.health.ri.gov for publications on these issues.

- All community hospitals are evaluated, including acute-care, specialty, teaching, non-teaching, network, and independent facilities, regardless of size. Hypothetically, financial performance is independent of categorization (i.e., any hospital in the same market area has equal opportunity to perform equally well on any financial measure). Therefore, further classification into smaller and smaller sub-groups is not productive with the small number of hospitals in the state.

- Aggregate statewide comparisons express generalities of overall performance. With every conclusion, however, there may be individual hospital exceptions. For example, RI's 2006 *Profit Margin* was lower than both the national and regional values, but Bradley and Miriam each performed better than these benchmarks.

- The individual hospital analyses measure each hospital's performance against all the hospitals in the state, not to regional or national benchmarks. Favorable trends are always for higher values on the indices. To interpret any of the standardized indices, one concludes that a hospital's index value is so many standard deviations from the mean (i.e., the average for all hospitals).

- The ranking of hospitals necessarily involves some subjectivity (i.e., the individual measures are chosen and relative weights are assigned). However, the methodology[4] is the same one used in HEALTH's 2001 Report and a rationale is provided for each decision. In addition, multiple years (3) are included to remove any vagaries associated with a single year's reporting.

---

[2] *On June 1, 2000, Rehab Hospital, became a wholly owned subsidiary of Landmark*
[3] *2004 Edition, Ingenix, Inc. 1-800-765-6588*
[4] *see Appendix -Methodology*

III. Profitability

Profitability measures examine the generation of net income, and the creation of wealth. Profitability is key to a hospital's long-term survival because philanthropy alone is an uncertain and inappropriate source of operating revenue. Hospitals that are consistently unprofitable will have insufficient funds to meet current requirements, to replace aging plants or to invest in new technologies. Two profitability statistics are presented: *Profit Margin*, and *Equity Growth Rates* (Table 1).

TABLE 1: PROFITABILITY MEASURES

	-1- Profit Margin			-2- Equity Growth Rates		
	2001	2002	2003	2001	2002	2003
Bradley	3.1%	2.6%	6.1%	-13%	-1%	13%
Butler	-0.7%	1.3%	1.7%	-9%	-5%	9%
Kent	2.8%	0.6%	-1.5%	-1%	1%	-5%
Landmark[1]	-5.9%	-1.7%	2.8%	-55%	-72%	89%
Memorial	0.1%	0.4%	-0.5%	-8%	-4%	1%
Miriam	6.0%	4.9%	5.2%	-5%	16%	24%
Newport	-0.9%	-1.1%	1.5%	-3%	-1%	12%
Rhode Island Hospital	-4.9%	-2.1%	0.1%	-18%	3%	13%
Roger Williams	-2.0%	-12.9%	-0.6%	-17%	-31%	7%
South County	-2.9%	-2.5%	-4.1%	-1%	-14%	-15%
St. Joseph	0.1%	0.3%	-0.7%	-1%	1%	2%
Westerly	1.1%	-3.4%	-5.3%	-7%	-12%	-2%
Women & Infants	1.8%	1.5%	1.1%	1%	1%	9%
RHODE ISLAND:	-0.7%	-0.8%	0.6%	-11%	-1%	10%
Benchmarks: United States:	3.2%	2.6%		5%	5%	
Benchmarks: Northeast:	2.0%	0.8%		2%	-1%	
Benchmarks: Connecticut:	2.9%	0.3%		-2%	-6%	
Benchmarks: Massachusetts:	1.5%	0.6%		-1%	-2%	

-1- Bottom-line net income (profit) as a percentage of total revenue -higher values are preferred
-2- Yearly percentage growth in net worth (net assets or equity) -higher values are preferred
[1] Includes Landmark's wholly owned subsidiary, Rehabilitation Hospital of RI
Benchmarks are from the 'Almanac of Hospital Financial & Operating Indicators', 2004 ed., Ingenix, Inc.

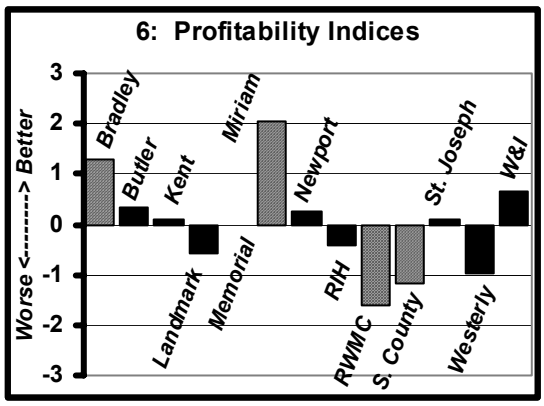
The *Profit Margin* is the bottom-line profit from hospital operations and non-operations alike. It reflects all realized gains and losses for the year. Low hospital profitability is a chronic problem in RI. Statewide margins were consistently and significantly below both national and regional benchmarks, although there was improvement in 2003. Traditionally, lower comparative *Margins* indicate poor expense management. However, the other variable often overlooked in the profitability equation is revenue (primarily patient reimbursement[5]). A recent study of 2002 hospital costs[6] found RI hospitals had the 2nd lowest expenses in New England and the 19th lowest in the U.S. Further, RI had the lowest reimbursement in N.E., and the 8th lowest in the country. This demonstrates that weak reimbursement was more a factor in the state's low profitability than were high expenses (at least in 2002).

The *Equity Growth Rate* measures what is happening to the net worth of a hospital, whether it is growing or shrinking. Ideally, healthy organizations are expected to increase

[5] *90.7% of 2003 statewide total hospital revenue was patient revenue, Hospital Financial Dataset (2003)*
[6] *Hospital Costs in Rhode Island (2002)–A State by State Comparison, Cryan B., HEALTH, Apr. 2004*

in value over time. A combination of three factors may affect a hospital's *Equity Growth Rate*: net income (or losses), fundraising efforts, and market returns on the investments. Any loss in equity is undesirable. Technically, when net worth becomes negative, an organization is considered insolvent. RI's performance on this measure was unfavorable. In 2001 and 2002, RI hospitals trailed their national and regional cohorts, and W&I was the only hospital to have positive growth rates both years (i.e., +1% each year). Things turned around in 2003, with a statewide *Equity Growth Rate* of +10%.

The top two hospitals for overall profitability were **Miriam** and **Bradley**, respectively (Chart 6). Miriam was the most profitable hospital with the largest growth in equity.[7] Bradley was the 2nd most profitable hospital with the 5th highest growth in equity. The bottom two hospitals for profitability were **Roger Williams** and **South County**, respectively. Roger Williams was the least profitable hospital with the 2nd largest loss in equity, and South County was the 2nd least profitable hospital with the 3rd largest loss in net assets.



[7] *Hospital rankings on individual measures are based on the weighted average values on each measure (25% for 2001, 34% for 2002, and 41% for 2003), except for Equity Growth Rate(s) which are compounded values for 2000-2003*

IV. Liquidity

Liquidity measures examine the ability of a hospital to meet its short-term obligations (i.e., to pay its bills), and the timing of cash into the facility. Most organizations experience a financial problem because of a liquidity crisis, and deterioration in these measures may presage future insolvency. Two liquidity statistics are examined: *Current Ratio*, and *Days in Patient Accounts Receivable* (Table 2).

TABLE 2: LIQUIDITY MEASURES

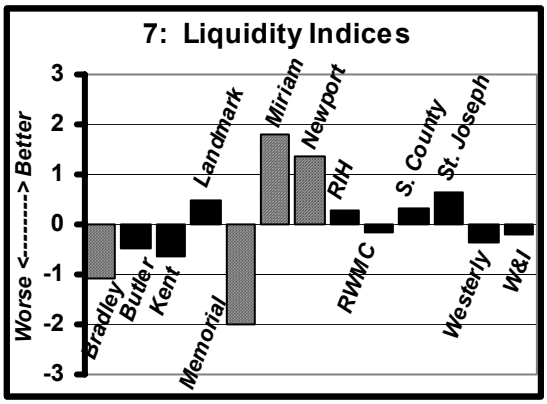
	-3- Current Ratio			-4- Days in Patient A.R.		
	2001	2002	2003	2001	2002	2003
Bradley	1.8	1.3	1.6	101	91	72
Butler	1.0	1.1	1.3	69	55	41
Kent	1.3	1.3	1.2	62	59	60
Landmark[1]	1.1	1.0	1.3	28	26	31
Memorial	1.3	1.5	1.3	104	100	87
Miriam	2.0	3.1	2.1	49	46	44
Newport	1.7	1.9	2.5	45	46	41
Rhode Island Hospital	1.6	1.7	1.8	66	58	51
Roger Williams	1.6	1.0	1.1	71	48	43
South County	1.9	2.6	1.7	69	74	60
St. Joseph	2.2	1.9	1.7	62	57	62
Westerly	1.2	1.2	0.7	48	43	42
Women & Infants	1.2	1.4	1.4	66	50	46
RHODE ISLAND:	1.5	1.6	1.5	64	57	52
Benchmarks: United States:	2.0	2.0		63	59	
Benchmarks: Northeast:	1.6	1.5		61	56	
Benchmarks: Connecticut:	1.8	1.7		59	53	
Benchmarks: Massachusetts:	1.5	1.7		63	55	

-3- Current assets relative to current liabilities -higher values are preferred
-4- Average days patient accounts receivable are outstanding (uncollected) -lower values are preferred
[1] Includes Landmark's wholly owned subsidiary, Rehabilitation Hospital of RI
Benchmarks are from the 'Almanac of Hospital Financial & Operating Indicators', 2004 ed., Ingenix, Inc.

The *Current Ratio* evaluates the amount of current assets available to pay off each dollar in obligations coming due within the year. It is a fairly stringent measure of liquidity as it includes only assets that are, or readily convertible to cash, in the numerator. This measure is one in which higher values are preferred, but those values shouldn't be 'excessive'. Hospitals must strike a balance between maintaining enough liquid assets for operations, but not so much as to affect profitability (i.e., *Profit Margin*). The return on short-term investments is generally less than that of monies invested longer, so there is an opportunity cost in maintaining liquidity. RI's *Current Ratios* were unfavorably less than the national values, but equivalent to the regional experience.

Days in Patient Accounts Receivable measures the average time receivables are outstanding. Lower values on this measure are favored. Patient care is the primary source of operating revenue, so prompt collection of these bills is critical. Increases in this measure can create cash-flow problems that usually cause a hospital to extend its own payables. RI hospitals were slower than their national and regional counterparts in their collections in 2001, however, they improved to beat the national benchmark in 2002. Ideally, cash-flow should be in 'balance' (i.e., revenue is received faster than bills are paid), or the hospital may need to fund its operations with a short-term loan. These

borrowings are the most expensive type of credit, so they are the least desirable way to finance everyday working capital. Fortunately, RI hospitals further improved their performance in 2003, with the *Days in Patient Accounts Receivable* falling from 57 to 52 days.



The top two hospitals for liquidity were **Miriam** and **Newport,** respectively (Chart 7). Miriam had the strongest cash position and the 8th fastest collection period, and Newport had the 2nd strongest cash balance and the 6th shortest collection period. The bottom two hospitals for liquidity were: **Memorial**, and **Bradley**, respectively. Memorial had the 7th weakest cash position and the slowest collections, and Bradley had the 8th weakest cash balance and the 2nd slowest collection period.

V. Leverage

Leverage indicates the importance of debt in financing the hospital, and the ability to incur additional debt. These ratios are closely monitored by creditors and bond rating agencies and may ultimately determine the amount of borrowing available for future capital projects. Two statistics are presented: *Debt to Capitalization*, and *Debt Service Coverage* (Table 3).

TABLE 3: LEVERAGE MEASURES

	-5- Debt to Capitalization			-6- Debt Service Coverage		
	2001	2002	2003	2001	2002	2003
Bradley	0%	0%	0%	n/a	n/a	n/a
Butler	13%	25%	22%	2.6	3.0	3.3
Kent	16%	31%	30%	4.2	2.4	1.4
Landmark[1]	77%	91%	84%	-0.1	1.2	3.1
Memorial	9%	8%	7%	2.5	3.0	2.3
Miriam	27%	33%	28%	8.0	6.5	5.5
Newport	14%	13%	12%	3.2	3.3	4.1
Rhode Island Hospital	30%	35%	32%	1.0	2.2	2.7
Roger Williams	30%	40%	37%	1.1	-2.6	1.6
South County	34%	41%	44%	0.4	1.4	0.8
St. Joseph	34%	36%	34%	3.5	3.0	1.8
Westerly	18%	27%	27%	2.0	1.9	1.0
Women & Infants	15%	33%	30%	2.1	5.1	4.9
RHODE ISLAND:	24%	30%	27%	1.9	2.4	2.8
Benchmarks: United States:	26%	27%		3.0	2.9	
Benchmarks: Northeast:	30%	35%		2.6	2.3	
Benchmarks: Connecticut:	20%	26%		3.2	2.7	
Benchmarks: Massachusetts:	35%	35%		2.3	2.7	

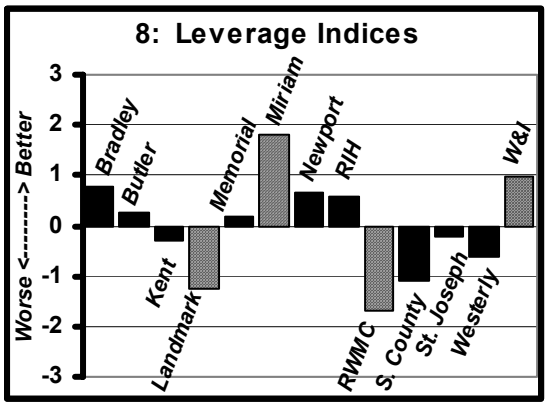
-5- Percentage of long-term-debt in the total capitalization of the hospital -lower values are preferred
-6- Cash flow relative to the interest & principal payment on the debt -higher values are preferred
[1] Includes Landmark's wholly owned subsidiary, Rehabilitation Hospital of RI
Benchmarks are from the 'Almanac of Hospital Financial & Operating Indicators', 2004 ed., Ingenix, Inc.

Debt to Capitalization measures the importance of debt in the hospital's permanent capital structure. Lower values are preferred because they indicate less financial leverage (i.e., less reliance on borrowing) and because these expenses are considered fixed in that they are long-lived and do not vary with volume. In 2001, RI was positively positioned below both the regional and national values. However, in 2002, a statewide increase in debt combined with a decrease in net assets sent the measure unfavorably above the national cohort. In 2003, RI's *Debt to Capitalization* improved from 30% to 27%. Low *Debt to Capitalization* values do not guarantee an ability to borrow additional monies under favorable terms, but rather, indicate the historical mix of financing. The amount of debt on the books is less important than the ability to repay same, which is a function of profitability. Unfortunately, RI's profitability suffers in comparison to hospitals elsewhere.

Debt Service Coverage is the single most important capital structure ratio, equating the available cash income to the principal and interest obligation on the debt. Higher values are preferred. Locally, this measure improved in value and ranking, from a position below both benchmarks in 2001 to above the regional value in 2002. At first glance this seems counterintuitive given the decline in profitability (i.e., *Profit Margin*) and increase in leverage (i.e., *Dept to Capitalization*) noted above in 2002. However, the cost of servicing

the greater debt in 2002 actually decreased 17%.[8] In addition, even though profitability declined in 2002, cash flow increased almost 5%[9] statewide. In 2003, RI hospitals further improved their performance on this measure by returning to aggregate profitability and increasing cash flow 29%.[10] Mortgage lenders use this ratio to examine the security of the debt, because it examines both a source and a use of revenue. A large *Debt Service Coverage* value does not always guarantee adequate repayment ability if the cash flows are predicated on a dependence on non-operating funds. These funds are usually beyond the control of the hospital, therefore, reliance on them represents added uncertainty and risk.

The top two hospitals for leverage were **Miriam** and **W&I**, respectively (Chart 8). Miriam had the 8th lowest financial leverage and the highest debt capacity and W&I had the 7th lowest leverage and the 2nd highest debt capacity. The bottom two hospitals for leverage were **Roger Williams** and **Landmark**, respectively. Roger Williams was the 3rd most leveraged hospital with the lowest debt capacity and Landmark was the most leveraged facility with the 3rd lowest debt capacity.



[8] *Principal + interest of $46.2m in 2001 to $38.5m in 2002, The Hospital Financial Dataset (2003)*
[9] *Net Income & Gains + Interest + Depreciation of $88.9m in 2001 to $93.1m in 2002, ibid*
[10] *Net Income & Gains + Interest + Depreciation of $93.1m in 2002 to $120.1m in 2003, ibid*

VI. Efficiency

Efficiency refers to how productively a hospital uses its assets to generate revenue. Hospital revenue consists mostly of patient reimbursement (91% in 2003) and some other minor sources (e.g., fundraising, investment returns, etc.). Therefore, the numerator in these ratios is a proxy for output (i.e., services provided) and the denominator is a measure of input (i.e., the investment is some category of assets). Two efficiency measures are examined: *Total Asset Turnover*, and *Fixed Asset Turnover* (Table 4).

TABLE 4: EFFICIENCY MEASURES

	-7- Total Asset Turnover			-8- Fixed Asset Turnover		
	2001	2002	2003	2001	2002	2003
Bradley	$0.65	$0.70	$0.77	$9.18	$5.86	$4.36
Butler	$0.90	$0.85	$0.86	$3.34	$3.38	$3.38
Kent	$1.21	$1.19	$1.17	$4.22	$3.77	$3.55
Landmark[1]	$1.70	$1.96	$2.12	$3.95	$4.54	$5.64
Memorial	$1.10	$1.21	$1.30	$3.78	$3.99	$4.49
Miriam	$1.17	$1.08	$1.09	$3.99	$3.64	$3.94
Newport	$0.33	$0.36	$0.35	$1.06	$1.12	$1.18
Rhode Island Hospital	$0.75	$0.77	$0.80	$2.07	$2.17	$2.15
Roger Williams	$1.24	$1.44	$1.55	$3.05	$3.14	$3.79
South County	$1.21	$1.14	$1.05	$2.52	$1.86	$1.62
St. Joseph	$1.57	$1.54	$1.59	$4.03	$3.80	$3.83
Westerly	$0.66	$0.68	$0.66	$1.58	$1.41	$1.32
Women & Infants	$1.17	$1.14	$1.21	$4.04	$3.91	$3.80
RHODE ISLAND:	$0.91	$0.93	$0.95	$2.73	$2.69	$2.71
Benchmarks: United States:	$1.00	$1.04		$2.29	$2.36	
Benchmarks: Northeast:	$0.97	$1.04		$2.48	$2.52	
Benchmarks: Connecticut:	$0.85	$0.89		$2.19	$2.09	
Benchmarks: Massachusetts:	$1.01	$1.03		$2.60	$2.63	

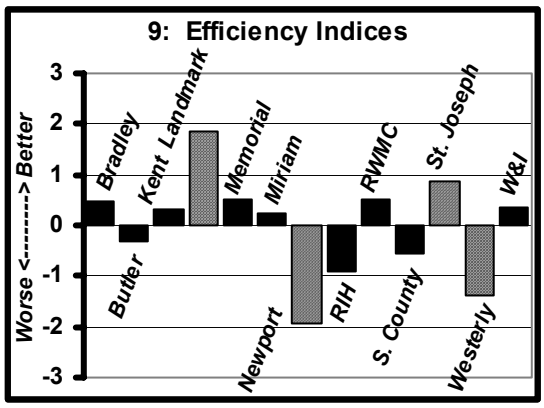
-7- Amount of revenue generated from each dollar invested in total assets -higher values are preferred
-8- Revenue generated from each dollar invested in property, plant & equipment -higher values are preferred
[1] Includes Landmark's wholly owned subsidiary, Rehabilitation Hospital of RI
Benchmarks are from the 'Almanac of Hospital Financial & Operating Indicators', 2004 ed., Ingenix, Inc.

The *Total Asset Turnover* is a comprehensive asset efficiency measure. It analyzes the productivity of the entire asset base. Higher ratio values are preferred and may reflect superior reimbursement, greater utilization, better investment returns, a more favorable mix of assets, or any combination thereof. RI's performance lagged both the national and regional experience both in 2001 and 2002, however, there was improvement in 2003 (from $0.93 to $0.95). As noted earlier (i.e., *Total Margin* above), RI's relatively low reimbursement rates contributed to this situation (at least in 2002).

The *Fixed Asset Turnover* measures the number of dollars generated from each dollar invested in property, plant and equipment. Again, higher values are preferred. RI values were consistently above both the regional and national amounts. The importance in maintaining a high *Fixed Asset Turnover* is that these investments are essentially constant (independent of patient volume), long-lived (useful lives to 30 years), and, for most part, illiquid (not easily sold or converted to other uses). This measure favors older facilities (i.e., because of understated historical book values). This was the case in RI, as its

facilities were somewhat older (10.8 Years) than those across the country (9.8 Years), and the same as other hospitals in the Northeast (10.8 Years).[11]

The top two hospitals for efficiency were **Landmark** and **St. Joseph**, respectively (Chart 9). Landmark had the highest revenue generation from its total assets and the 2nd highest from its fixed assets, and St. Joseph had the 2nd highest *Total Asset Turnover* and the 5th highest *Fixed Asset Turnover*. The bottom two hospitals for efficiency were **Newport** and **Westerly**, respectively. Newport had the lowest values on both measures, and Westerly had the 2nd lowest values on both measures.



[11] *2002 Average Age of Plant; RI data, Hospital Financial Dataset (2003), US & NE data, Almanac of Hospital Financial & Operating Indicators, 2004 ed, Ingenix*

Appendix -Methodology

For each facility, eight measures were calculated and grouped into four categories: **profitability** (the generation of net income), **liquidity** (the ability to pay one's bills), **leverage** (the capacity for debt financing), and **efficiency** (the productivity of the assets). Statewide values were then compared to the corresponding national and Northeastern[12] values to evaluate hospital performance locally.

Any number of financial ratios may be calculated, however, three criteria were used in selecting the eight individual measures here. First, they had to be derived from audited data. Second, comparable benchmarks had to be available. Third, they had to be widely used and recognized both within and out of the industry as key indicators of financial performance. Each one had to provide the maximum amount of utility. For example, *Times Interest Earned* and *Debt Service Coverage* are two (out of 10^{+}) capital structure ratios. They roughly measure the same thing (i.e., debt repayment) with some important differences. *Debt Service Coverage* considers the entire debt obligation (i.e., interest plus principal) and all available cash (i.e., cash-flow rather than accounting income). In addition, *Debt Service Coverage* is the primary capital structure ratio used by bond rating agencies to assess hospital credit. Therefore, for these reasons it was chosen for inclusion in this Report.

Individual hospital performance was assessed by developing four indices corresponding to the four ratio categories. To accomplish this, the individual ratios were standardized,[13] a weighted average for all ratios (and all three years) in each category was calculated, and these weighted averages were again standardized to yield a performance index. Higher values on an index indicate superior performance. To interpret any of the standardized indices, one concludes that the index value is so many standard deviations from the mean (i.e., the average for all hospitals). For example, Landmark's liquidity index is 1.9, or almost 2 standard deviations above the state average. In a 'normal' distribution, approximately 66% of the population is within +/-1 standard deviation, and 95% is within +/-2 standard deviations (of the mean). This puts Landmark at the top of the state in this measure, and examination of all other hospital liquidity indices bears this out. In those cases where the desired trend for an individual ratio is for lower values (i.e., *Days in Patient Accounts Receivable,* and *Debt to Capitalization*), the inverse of the standardized values were taken.[14] Relative weights given to yearly performance are 25% for 2001, 34% for 2002, and 41% for 2003. Therefore, and logically, a hospital's most recent performance is considered more important than how it operated in prior years.

Weights given to the individual **profitability** measures are 55% for *Profit Margin*, and 45% for *Equity Growth Rate*. The *Profit Margin* is the primary metric of ongoing profitability and is rated more heavily than the *Equity Growth Rate*, which may be influenced by outside

---

[12] *Includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and New York*

[13] *i.e., ((individual hospital value – mean of all hospitals' values) / standard deviation of all hospitals' values), standardization enables disparate information to be compared in a statistically valid fashion regardless of differences in scale*

[14] *To preserve larger comparative values as the desired trend*

factors beyond the hospital's control (e.g., a financial market downturn, a worsening economy affecting charitable contributions).

Weights given to the **liquidity** measures are 45% for *Current Ratio*, and 55 % for *Days in Patient Accounts Receivable*. The *Current Ratio* is weighted less heavily because it is a somewhat conceptual measure of liquidity at a single point in time that may be improved with the simple reallocation of investments into shorter positions. *Days in Patient Accounts Receivable*, however, is a material liquidity statistic and is weighted higher because effective management of these accounts is essential for working capital.

Weights given to the individual **leverage** ratios are 45% for *Debt to Capitalization*, and 55% for *Debt Service Coverage*. *Debt to Capitalization* is rated less important because it measures the relative amount, but not the actual cost of the debt. The *Debt Service Coverage* calculates the ability to repay the debt obligation from cash-flow so it is rated more important.

Weights given to the **efficiency** measures are 50% for *Total Asset Turnover*, and 50% for *Fixed Asset Turnover*. The *Total Asset Turnover* is weighted 50% because it includes all assets under the control of the hospital. The *Fixed Asset Turnover* is derivative of the *Total Asset Turnover*, but it is weighted equally important because these are long-lived hard assets, not easily converted to other purposes.

To determine overall financial performance, the indices in the four ratio categories are weighted 45% for **profitability**, 20% for **liquidity**, 20% for **leverage**, and 15% for **efficiency**. Those weighted averages are then standardized to arrive at a single overall performance index for each hospital. Again, higher values are preferred. Profitability is rated most important because all other measures pale in significance. Hospitals that consistently lose money and value will not survive. It doesn't matter how low the debt burden, how strong the liquidity, or how efficiently the assets are used, an unprofitable hospital is fated for failure. **Liquidity** and **leverage**, are rated equal in importance (20%), with **efficiency** slightly lower (15%) because is only considers the generation of revenue and not whether the services that produce that revenue are profitable.